Name: Date:

Practice finding inverse functions

1. Find the inverse function.

$$f(x) = 3x + 5$$

Remove function notation by replacing $f(x)$ with y.

$$y = 3x + 5$$

Swap x and y, so now y represents the inverse function, $f^{-1}(x)$.

$$x = 3y + 5$$

Subtract 5 from both sides.

$$x - 5 = 3y$$

Divide both sides by 3.

$$\frac{x-5}{3} = y$$

Return to function notation. Remember, after the swap, y represents the inverse function.

$$f^{-1}(x) = \frac{x-5}{3}$$

2. Find the inverse function.

$$f(x) = \frac{x-4}{7}$$

Remove function notation by replacing $f(x)$ with y.

$$y = \frac{x-4}{7}$$

Swap x and y, so now y represents the inverse function, $f^{-1}(x)$.

$$x = \frac{y-4}{7}$$

Multiply both sides by 7.

$$7x = y - 4$$

Add 4 to both sides.

$$7x + 4 = y$$

Return to function notation. Remember, after the swap, y represents the inverse function.

$$f^{-1}(x) = 7x + 4$$

3. Find the inverse function.

$$f(x) = 6(x+1)$$

Remove function notation by replacing $f(x)$ with y.

$$y = 6(x+1)$$

Swap x and y, so now y represents the inverse function, $f^{-1}(x)$.

$$x = 6(y+1)$$

Divide both sides by 6.

$$\frac{x}{6} = y+1$$

Subtract 1 from both sides.

$$\frac{x}{6} - 1 = y$$

Return to function notation. Remember, after the swap, y represents the inverse function.

$$f^{-1}(x) = \frac{x}{6} - 1$$

4. Find the inverse function.

$$f(x) = 8 + \frac{x}{3}$$

Remove function notation by replacing $f(x)$ with y.

$$y = 8 + \frac{x}{3}$$

Swap x and y, so now y represents the inverse function, $f^{-1}(x)$.

$$x = 8 + \frac{y}{3}$$

Subtract 8 from both sides.

$$x - 8 = \frac{y}{3}$$

Multiply both sides by 3.

$$3(x-8) = y$$

Return to function notation. Remember, after the swap, y represents the inverse function.

$$f^{-1}(x) = 3(x-8)$$

5. Find the inverse function.

$$f(x) = 7x - 2$$

Remove function notation by replacing $f(x)$ with y.

$$y = 7x - 2$$

Swap x and y, so now y represents the inverse function, $f^{-1}(x)$.

$$x = 7x - 2$$

Add 2 to both sides.

$$x + 2 = 7y$$

Divide both sides by 7.

$$\frac{x+2}{7} = y$$

Return to function notation. Remember, after the swap, y represents the inverse function.

$$f^{-1}(x) = \frac{x+2}{7}$$

6. Find the inverse function.

$$f(x) = \frac{5+x}{9}$$

Remove function notation by replacing $f(x)$ with y.

$$y = \frac{5+x}{9}$$

Swap x and y, so now y represents the inverse function, $f^{-1}(x)$.

$$x = \frac{5+y}{9}$$

Multiply both sides by 9.

$$9x = 5 + y$$

Subtract 5 from both sides.

$$9x - 5 = y$$

Return to function notation. Remember, after the swap, y represents the inverse function.

$$f^{-1}(x) = 9x - 5$$

7. Find the inverse function.

$$f(x) = (x-8)\cdot 3$$

Remove function notation by replacing $f(x)$ with y.

$$y = (x-8)\cdot 3$$

Swap x and y, so now y represents the inverse function, $f^{-1}(x)$.

$$x = (y-8)\cdot 3$$

Divide both sides by 3.

$$\frac{x}{3} = y - 8$$

Add 8 to both sides.

$$\frac{x}{3} + 8 = y$$

Return to function notation. Remember, after the swap, y represents the inverse function.

$$f^{-1}(x) = \frac{x}{3} + 8$$

8. Find the inverse function.

$$f(x) = \frac{x}{5} - 2$$

Remove function notation by replacing $f(x)$ with y.

$$y = \frac{x}{5} - 2$$

Swap x and y, so now y represents the inverse function, $f^{-1}(x)$.

$$x = \frac{x}{5} - 2$$

Add 2 to both sides.

$$x + 2 = \frac{x}{5}$$

Multiply both sides by 5.

$$5(x+2) = y$$

Return to function notation. Remember, after the swap, y represents the inverse function.

$$f^{-1}(x) = 5(x+2)$$